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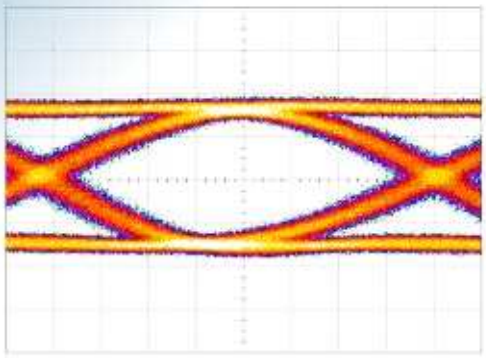
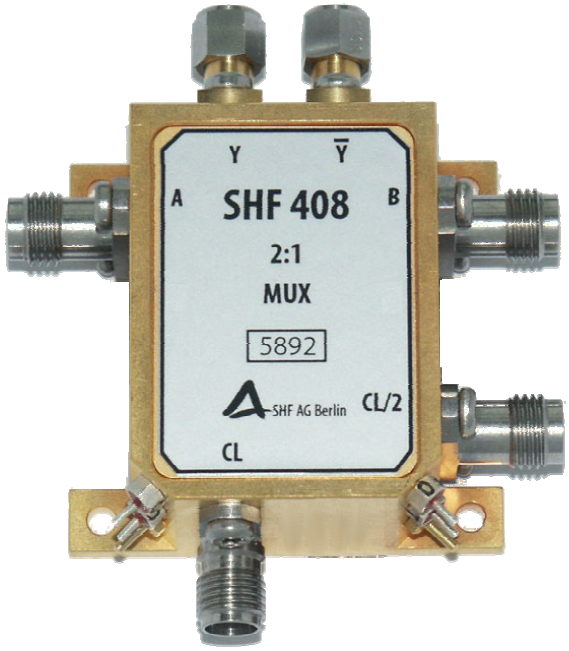


Datasheet

SHF 408 Mux

100 Gbps Multiplexer Module



Description

The SHF 408 MUX is a 2:1 multiplexer which operates at data rates up to 100 Gbps for use in broadband test setups and telecom transmission systems. Two single ended data channels are accepted by the multiplexer at a nominal input data rate of 50 Gbps and combined into a 100 Gbps differential serial data stream. A single ended clock signal with a frequency of half the output data rate (nominally 50 GHz), drives the SHF 408 MUX.A copy of the divided input clock at a nominal frequency of 25 GHz is provided as an output signal to drive preceding circuits or pattern generators. Data and clock outputs are DC-coupled ground referenced CML signals with on-chip 50 Ω terminations. The data and clock inputs are AC-coupled and also include 50 Ω terminations.

The multiplexer is supplied as standard with a mains power adaptor and is mounted on an assembly with two potentiometers. This takes care of the power supply and allows the clock bias and data bias settings to be adjusted.

In addition to the 2:1 multiplexer, we also provide matched pair of driver amplifiers for modulation up to at 100 Gbps. Using our RF/microwave component and expertise, we also offer to customize the optical transmitter to generate optical signal formats from 80 to 100 Gbps.

Features

- SiGe HBT technology
- Supports output data rates from 2 Gbps up to 100 Gbps
- Low power consumption: 1 W typ.
- Single ended AC-coupled inputs 300…1000 mV
- 1mm connectors for the 100 Gbps outputs
- 1.85mm (V compatible) connectors for the data inputs

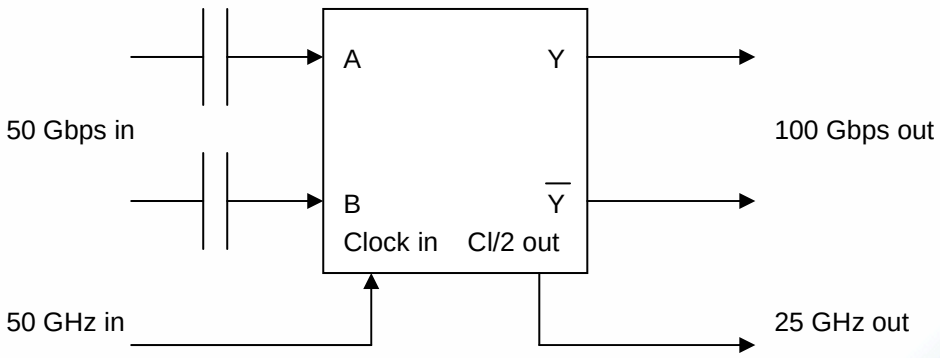
Applications

- Broadband test setups
- Telecom transmission systems prototyping

Options

- 1.85mm male or female (V compatible) connectors at the outputs
- Matched driver amplifier pair for E/O conversion up to 100 Gbps using dual-drive Mach Zehnder modulators
- Customization of the optical transmitter

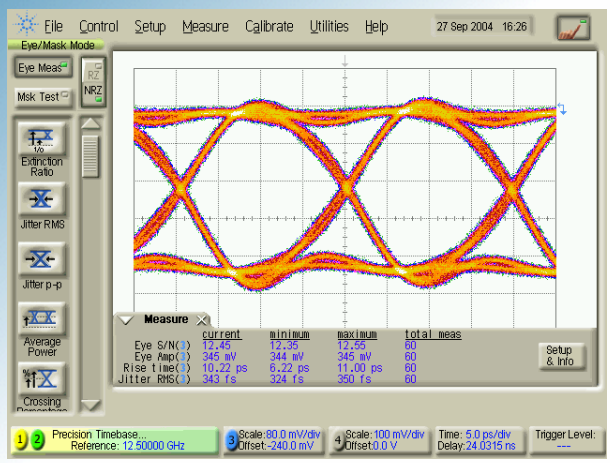
Block diagram



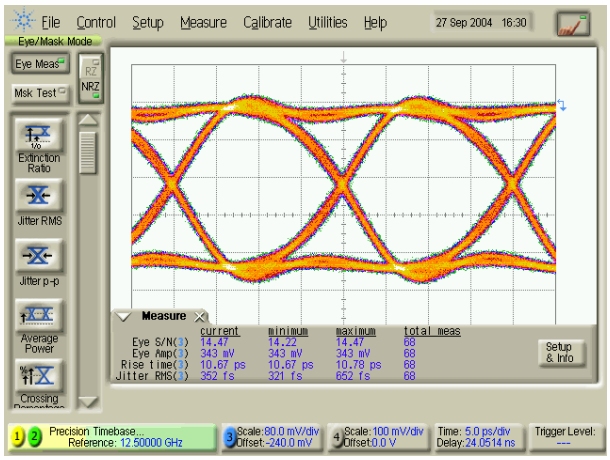
Preliminary specifications – SHF 408

Parameter	Unit	Min.	Typ.	Max.	Conditions
Input parameters (AC coupled)					
Data rate	Gbps	2		50	
Eye amplitude	mV	300		1000	
Return loss	dB			-10	
Output parameters					
Data bit rate	Gbps	4		100	
Voltage high level	mV		0		
Voltage low level	mV		-300		
Eye amplitude	mV		300		
Rise time	ps		6		20…80%, at 80Gbps
Fall time	ps		6		20…80%, at 80Gbps
RMS jitter	fs			400	at 80Gbps, indicated on oscilloscope
Return loss	dB			-10	
Clock parameters					
Input level	mV	500		1000	
Input return loss	dB			-10	
Clock/2 output level	mV		300		
Clock/2 output return loss	dB			-10	
Power requirements					
Negative supply voltage	V		-3.3		power supply included in Option BA
Negative supply current	mA		300		
Total power dissipation	W		1		

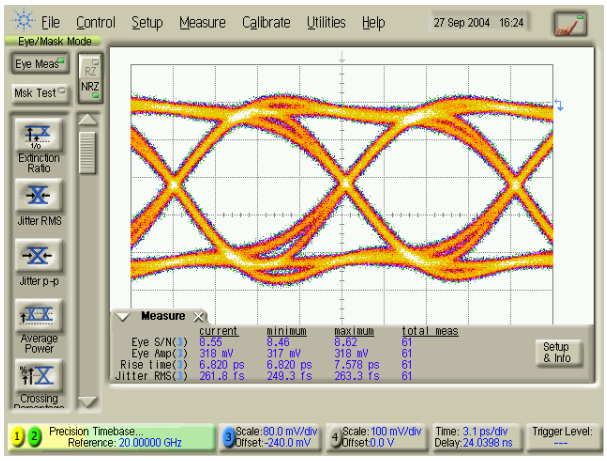
Output waveforms



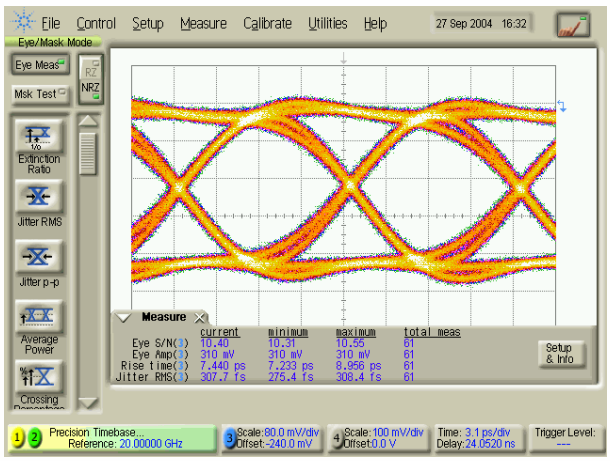
50 Gbps non-inverted output



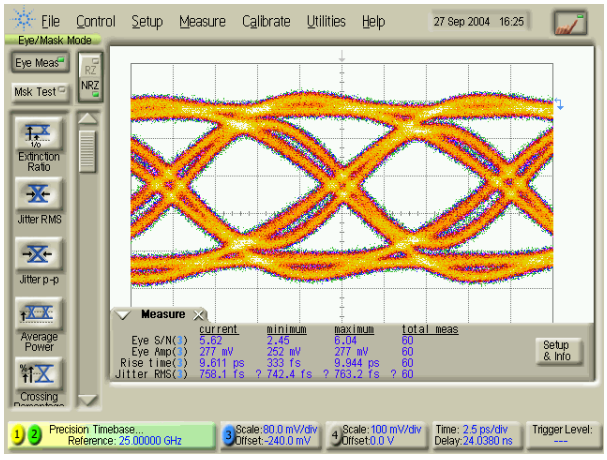
50 Gbps inverted output



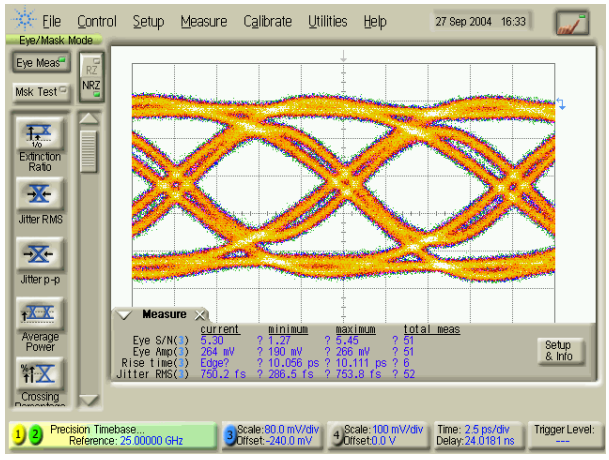
80 Gbps non-inverted output



80 Gbps inverted output



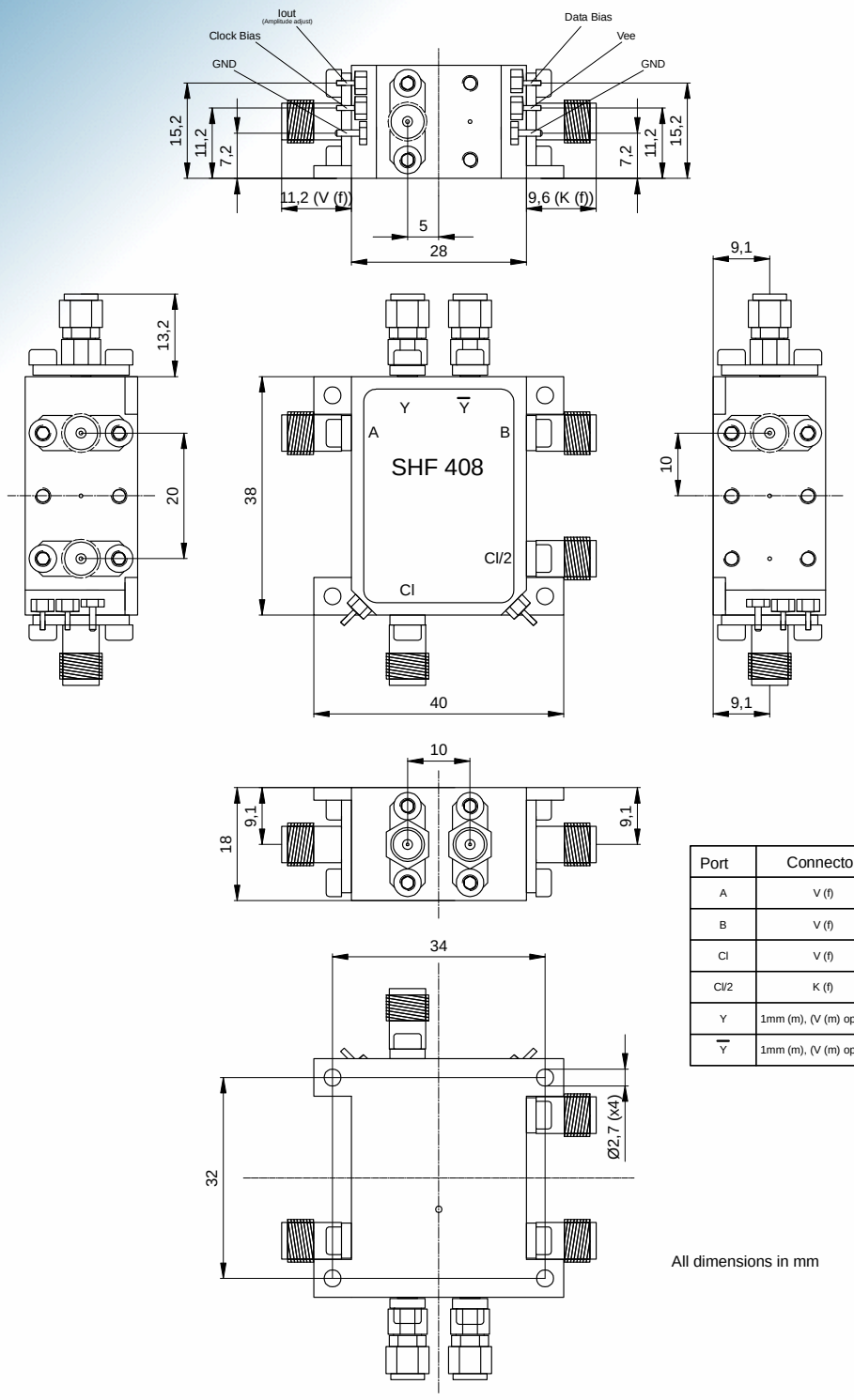
100 Gbps non-inverted output



100 Gbps inverted output

Measured using Agilent DCA 86100B, sampling module 86118A [70 GHz], precision timebase module 86107A, 10 dB attenuator

Module outline



Port	Connector
A	V (f)
B	V (f)
Cl	V (f)
Cl/2	K (f)
Y	1mm (m), (V (m) optional)
$\overline{Y}$	1mm (m), (V (m) optional)

All dimensions in mm

Acknowledgment

This project has been co-financed with funds of the European Union and the federal state of Berlin - European Fonds for regional development